

TRIMEN'S TAXONOMY AND A REVISED HANDBOOK TO THE FLORA OF CEYLON

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Introduction

Trimen's taxonomic work in Ceylon (now Sri Lanka) culminated in the publication of "A Handbook to the Flora of Ceylon" ⁽¹⁾, a major pioneering study in the assessment of a tropical regional flora of Asia. The publication, in fact, (hereafter referred to as the *Handbook*) was the first of its kind for Asia even preceding that of Cooke's first volume of *The Flora of the Bombay Presidency* (1903).

The *Handbook* proved not to be a floristic inventory only, but more importantly a systematic study without, however, the details of a modern monographic research. A product of post-Linnaean taxonomy, Trimen's research in this publication, however, was not fettered by the narrow pre-Darwinian typology of the older authors. Instead, it was based on a broader investigation of plant populations garnered from original field studies no less from a wide examination of herbarium material. In this effort Trimen was much influenced by the opinions of the botanists of Kew and of the Natural History Museum, London, no less by the previous research of Thwaites ⁽²⁾ whose "accuracy and invaluable work," particularly, Trimen acknowledges in his Introduction (hereafter used in reference to the *Handbook*) with a great sense of reliance.

Unfortunately, Trimen did not leave any references to his own views on the particular lines of his taxonomic research. These may, however, be reasonably inferred by tracing the manner of treatment of the taxa in the *Handbook*, aided by a general knowledge of the subject. The object of this paper, therefore, is to sketch the highlights of Trimen's taxonomy as it appears in his treatment in the *Handbook*, without delving into nebulous speculations.

Classification

The *Handbook* was designed according to the pattern of a systematic Flora. But being essentially an expression of the Alpha or Orthodox school of taxonomy it adhered to a natural system of classification within the major phyletic classes of the Dicotyledons, Gymnosperms and Monocotyledons. Its accent was on the expression of natural relationships in terms of gross morphology as attempted by Bentham and Hooker in the *Genera Plantarum* ⁽³⁾. This system, therefore, as followed in this publication, was the efficient framework within which Trimen gave scope to his taxonomic insight into the Sri Lankan flora in the *Handbook*. He presented the same orderly sequence of families as given in the *Genera Plantarum* without referring to the major constitutive series of that arrangement. Within classification, keys form an infallible medium to express the originality of a taxonomic study. Expressed differently "the construction of a key is an intellectual challenge!" (to originality). Davis and Heywood ⁽⁴⁾. In the *Handbook* Trimen's keys, the first such attempt into synthesising taxa in a Flora of Ceylon, are thus presented as a crystallisation of the essence of his original conceptions of generic and specific delimitation. These are usually based on clear qualitative characters selected according to the nature of the group in question. In the case of the tree families, the Dipterocarpaceae and Sapindaceae, for instance, the keys to the genera begin with vegetative characters and then

pass on to floral or fruiting peculiarities. Within these Trimen invariably arranges the leads to bring out the correlation of allied genera or species (though these may sometimes not be placed close to each other in a key --- e.g. *Stenosiphonium* and *Strobilanthes*, (occurring distally from each other in the Key to Genera but proximally in the description) --- in accordance with a natural system of classification that attempts to show affinities. The style of Trimen's judicious selection of characters lent the keys such stable validity that they still could be used to identify a taxon without reference to the present accounts of *A Revised Handbook to the Flora of Ceylon* ⁽⁵⁾. The writer's own methodology in the laboratory can vouch for this. His initial investigation into a species is usually followed by consulting a relevant key of the Handbook; and invariably he finds how correctly it leads work in identifying the taxon in question with no uncertainty --- an infallible indication that such good keys, according to knowledgeable taxonomists, "are a proof of the pudding, because the author of the group is challenged to crystallise the essence of his work in it." van Steenis ⁽⁶⁾.

Nomenclature

A peculiar feature of a taxonomic effort in nomenclature is the author's concepts of a genus or species. This appears in his application of characters to either taxon in the *Handbook*. As remarked earlier, keeping away from the static typological concept of the pre-Darwinian taxonomists, he worked on a wide range of representative material and adopted, instead, broad concepts of genera and species based on populations as followed by Bentham and Hooker. So, for instance, he maintained within the Gentianaceae the large genus *Limnanthemum* Gmel. as did Clarke in the Flora of British India ⁽⁷⁾ transferring to this genus as well four other species previously described under *Menyanthes* L. He similarly kept unchanged certain traditional and controversial genera such as *Doona* Thw. *Coleus* Lour. and *Adhatoda* Nees, and rightly maintained *Thunbergia* Retz. as Thwaites (2) and Clarke (6) did, as a legitimate genus in the Acanthaceae. In instances like these Trimen in his time must have realized that he had to follow a certain amount of tradition. "We have, in plant taxonomy, more tradition than in most other branches of botany!" said Turrill later interpreting the traditional style of the classical taxonomists ⁽⁸⁾.

Equally characteristic of Trimen's determinations was a general lack of subjectivity in his evaluation of specific characters. This was one area in which he showed his originality. His field experience and examination of herbarium material at Kew and at Peradeniya assisted him in this objective analysis. He would thus not be hasty in determining a species. A clear example of this is seen in the examination of a specimen C. P. 2076 which purportedly referred to *Leucas longifolia* Benth. The specimen was not complete, being only in bud. Yet without committing himself he remarked: "I do not feel certain as to its name. Perhaps an undescribed species." *Handbook* (3: 386). Similarly, noting the distinct peculiarity of a *Stemonoporous* specimen he labelled it (in manuscript only) as a new species, *Stemonoporous lewisianus* Trimen, but later accepted it as *S. acuminatus* Bedd. correctly realising that it was based on *Vateria acuminata* Thw., a species, though not new, yet different from the other *Stemonoporous* species then known. It was for the same characteristic that Trimen cautiously described not more than six new species among the whole gamut of the Ceylon flora! All of these like *Doona obscura*, *Coleus elongatus* and *Ficus caudiculata* (and the other three) have withstood the test of time and still remain valid! A seventh species, however, *Eugenia pedunculata* Trim. has now been reduced to subsp. *pedunculata* Trim. under *Eugenia mabaeoides* Wt. by Ashton. ⁽⁹⁾ Trimen's judgement was so circumspect that his conception of a species did not overstress the importance of an individual character in accordance with the principle that "not every character has the same value in discriminating between taxa." Davis and Heywood ⁽¹⁰⁾. This appears particularly in his specific keys.

On the other hand, some have remarked as Alston has done ⁽¹¹⁾, that the Handbook contains not a few mistakes in nomenclature. Apparently, some of these may have been considered mistakenly by critics as been due to their falling short of the rule of priority. However, it must be remembered that till the time of the Cambridge Botanical Congress, 1930, the rule of priority had not yet been formulated into the standard code of botanical nomenclature. An example in point is the case of *Cissus quadrangularis* L., Mant. II Pl. (1771) now the correct name for the common vine cited in the Handbook (1: 51) as a synonym of *Vitis quadrangularis* Wall., Num. List (1828). But the Wallichian name then, though not a transgression of a nomenclatural rule that had not existed, yet correctly referred to the vine in question. Trimen's taxonomy may also be thought to suffer from a certain inadequate sharpness in the identity of some taxa particularly at generic level. But again it must be noted that Trimen could not have based his nomenclature on the type method which came into vogue with the same Cambridge Botanical Congress, 1930; and many of the name changes now required in the Handbook are really due to a want of application of the rule of typification. The out-dated genus *Cardanthera* Buch.-Ham. ex Benth., for example, is now known to belong either to *Hygrophila* R. Br. or *Brillantaisia* P. Beauv. according to whether the respective species of either are based on *H. ringens* L. (type species of the former) or *B. oswariensis* P. Beauv. (type species of the latter).

Variations

His wide field experience and examination of herbarium material influenced other aspects of Trimen's broad taxonomy. These are seen in his acceptance of infraspecific variation, too. In his period of work there was as yet no shift of emphasis to the subspecies as there is today. Trimen's conception of variation remained, therefore, at the varietal level as seen in his accounts of many families, notably in the Acanthaceae. In the line of his usual research into the Sri Lankan Flora Trimen's conceptions of variation were circumscribed by morphology with a tilt to vegetative characters occasionally related to a certain degree of morphological discontinuity. Within the common weed *Leucas zeylanica* (L.) R. Br., for instance, usually encountered by roadsides and in plantations, the distribution of var. *walkeri* (Benth.) Hook.f. is recorded as limited to the patanas of the uplands (Handbook 3: 387).

Descriptions

Yet another inherent feature of Trimen's taxonomy was his clear conception of the characteristics of species linked to a gifted craft for description. In this aspect his descriptions, yet another clear reflection of his originality, paid attention to detail, where this was required, and was often influenced by first-hand observations in the field and especially by patient dissection of fresh specimens of plants. This methodology is acknowledged in the *Introduction*: "Whenever possible, this has been made from fresh living specimens; it is as brief as is consistent with completeness and with efficiency for accurate determination." As a result the descriptions in this work were an improvement over those of the Flora of British India and bear the mark of Bentham's standard requirement that "descriptions should be clear, concise, accurate and characteristic so that each one should be adapted to the plant it relates to." ⁽¹²⁾ Unless in case of inadequate material, Trimen's descriptions covered concisely the whole morphology of the plant from habit and leaf to flower and fruit, and often to seed, and leaves no mistake as to the identity of its species. The writer, who usually also builds his own description methodology on personal observations in the field linked with original dissections of fresh plants, finds that the descriptions in the Handbook are so thorough and complete that they could hardly be improved upon and undoubtedly confirm the identity of the species referred to in a related key.

Observations

Another original trait of Trimen's taxonomy are the many observations seen appended to the end of descriptive parts. These lend supplementary information and added practical comprehension of a species. Essentially, the observations take the form of critical notes in various ways. Some of these question the valid identity of a species or variety, or they may record the distribution of a population of species in a particular locality or a correction of flower colour wrongly used by authors as Wight in his *Illustrations* or Clarke in the *Flora of British India*. Yet others note the flowering peculiarities of a species ---e.g. the six-annual flowering of *Strobilanthes sexennis* Nees, or even the variability of leaf size and leaf pubescence of a tree species as *Palaquium grande* (Thw.) Engl. The observations, in short, make arresting reading, and lend evidence to the thoroughness and originality of a taxonomic mind.

Conclusion

That the *Handbook* brings out Trimen's stature as one of the leading Asian systematists of his period cannot be denied. He was not a mere plant collector; he was more a researcher in Asian taxonomy with an original vision of describing for posterity the rich diversity of the Ceylon flora as was then known to him. The results of his laborious research when assembled into a systematic thesis emerged with the publication of *A Handbook to the Flora of Ceylon*, a veritable thesaurus plantarum for Sri Lanka (Ceylon). In spite of Trimen's humble acknowledgement in his *Introduction* "that much remains to be done," the *Handbook* still remains an essential source of taxonomic information to inspire further research into the flora of Sri Lanka (Ceylon) in the decades of the next millenium. This magnum opus signals only one long-distant answer to that inspiration authored by Henry Trimen as *A Handbook to the Flora of Ceylon*!

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